

# **Research and Development**

## **Particulate Emission Measurements from Controlled Construction Activities**

### **Prepared for**

**Office of Air Quality Planning and Standards**

### **Prepared by**

**National Risk Management  
Research Laboratory  
Research Triangle Park, NC 27711**

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# **Particulate Emission Measurements from Controlled Construction Activities**

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## **Abstract**

This report summarizes the results of field testing of the effectiveness of control measures for sources of fugitive particulate emissions found at construction sites. Tests of the effectiveness of watering of temporary unpaved travel surfaces on PM-10 emissions were performed in Beloit, Kansas during September 1999. The tested operation was scraper transit. Tests of the effectiveness of paved and graveled access aprons on mud/dirt trackout from unpaved truck exit routes were performed in Grandview, Missouri during November 1999. In the latter tests, moisture content and soil type were varied to determine whether watering of exit routes, while reducing on-site emissions, might have an offsetting effect of increasing emissions attributable to mud/dirt trackout controls in place.

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## Contents

Abstract .....	ii
Figures .....	v
Tables .....	vi
Acronyms and Abbreviations .....	vii
Conversion Factors .....	viii
<b>Chapter 1 Introduction</b> .....	1
Background .....	1
Historical Emission Factors .....	1
Recent Field Studies .....	2
Scope of the 1999 Field Study .....	3
Organization of the Report .....	4
<b>Chapter 2 Air Sampling Methodology</b> .....	5
Test Sites and Overview of Tested Operations .....	5
Air Sampling Test Methods .....	12
Ancillary Measurements .....	17
Data Reduction .....	19
<b>Chapter 3 Test Site Results</b> .....	23
Watering Control of Scraper Transit Emissions .....	23
Discussion of the Watering Test Results .....	28
Particle Size Data for Watered and Unwatered Travel Routes .....	34
Mud/Dirt Trackout Study Test Results .....	40
Discussion of the Mud/Dirt Trackout Results .....	44

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Chapter 4	Quality Assurance/Quality Control Activities	49
	Quality Control	49
	Data Audit	50
	Data Assessment	51
Chapter 5	Summary and Conclusions	53
References		55
Appendices		
A	Site-Specific Test Plan, Revision 1	A-i
B	Quality Assurance Project Plan, Revision 1	B-i
C	North Central Kansas Technical College Sampling Data	C-1
D	Example Calculation — Run BY-201	D-1
E	Second-Tier Meteorological Observations	E-1
F	Particle Sizing Data	F-1
G	Deramus Field Station Sampling Data	G-1

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## Figures

2-1.	NCKTC overview. . . . .	6
2-2.	Schematic illustration of test procedure for moving point source (NCKTC). . . .	7
2-3.	Overview of DFS test site. . . . .	8
2-4.	Trackout and sampling areas for Phase 1 (DFS). . . . .	10
2-5.	Trackout and sampling areas for Phase 2 (DFS). . . . .	11
2-6.	Trackout and sampling areas for Phase 3 (DFS). . . . .	12
2-7.	Trackout and sampling areas for Phase 4 (DFS). . . . .	13
2-8.	Sampler deployment at NCKTC. . . . .	14
2-9.	Cyclone preseparator operated at 40 cfm . . . . .	15
2-10.	Cyclone preseparator – cascade impactor operated at 20 cfm. . . . .	16
3-1.	Decay of moisture content with time after watering (NCKTC) . . . . .	29
3-2.	Decay of instantaneous control efficiency with time after watering (NCKTC) .	30
3-3.	Decay of average control efficiency with time after watering (NCKTC) . . . . .	31
3-4.	Best fit lines for average control efficiency decay with time after watering (NCKTC). . . . .	32
3-5.	Exponential decay in surface moisture content with time after watering (NCKTC) . . . . .	34
3-6.	Instantaneous PM-10 control efficiency versus surface moisture content (NCKTC) . . . . .	35
3-7.	Comparison of instantaneous control efficiency with previously published function (NCKTC). . . . .	36
3-8.	Particle size distributions for 1998 uncontrolled scraper transit emissions (BV runs) from reference 3. . . . .	37
3-9.	Comparison of particle size distributions for 1999 BY runs and 1998 BV runs	38
3-10.	Correlation between PM-2.5/PM-10 ratio and PM-10 emission factor. . . . .	39
3-11.	Average control efficiency decay rates for PM-10 and PM-2.5 versus relative humidity. . . . .	41
3-12.	Correlation between loading and moisture content for sandy soil in conjunction with gravel apron (DFS). . . . .	47

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## Tables

2-1.	Moisture Content Determination . . . . .	17
2-2.	Silt Content Determination . . . . .	18
3-1.	Test Site Parameters . . . . .	24
3-2.	Isokinetic Correction Parameters (By Runs) . . . . .	25
3-3.	Plume Sampling Data . . . . .	26
3-4.	Emission Factors . . . . .	28
3-5.	Decay Rates Fitted by Least-Squares Linear Regression . . . . .	31
3-6.	Correlation Matrix . . . . .	32
3-7.	PM-2.5 Control Efficiency Values . . . . .	40
3-8.	Trackout Study Test Parameters . . . . .	42
3-9.	Surface Loading Results (DFS) . . . . .	43
3-10.	Summary Statistics for Loading Values . . . . .	46
3-11.	Control Efficiency Values . . . . .	46
4-1.	Data Quality Objectives . . . . .	50
4-2.	Critical and Non-Critical Measurements for Emission Factors . . . . .	52



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## **Acronyms and Abbreviations**

ACE	Average control efficiency
acfm	Actual cubic feet per minute
DFS	Deramus Field Station (located in Grandview, Missouri)
DQO	Data quality objective
EPA	Environmental Protection Agency
ICE	Instantaneous control efficiency
IFR	Isokinetic flow ratio
MRI	Midwest Research Institute
NCKTC	North Central Kansas Technical College (located in Beloit, Kansas)
PM	Particulate matter
PM-X	Particulate matter less than X $\mu\text{m}$ in aerodynamic diameter
QA	Quality assurance
RH	Relative humidity
sL	Silt loading
vmt	Vehicle miles traveled

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## Conversion Factors

Certain nonmetric units are used in this report for the reader's convenience. Readers who are more familiar with the metric system may use the following to convert to that system.

Nonmetric	Multiplied by	Yields metric
ft	0.3048	m
cfm	1.70	m <sup>3</sup> /hr
yd <sup>3</sup>	0.7646	m <sup>3</sup>
ton	0.907	metric ton
lb	0.4536	kg